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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,864	09/08/2005	Manfred Ratzsch	4385-045796	9009

28289 7590 07/16/2008

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EXAMINER	
HEINCER, LIAM J	

ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
07/16/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/517,864	RATZSCH ET AL.	
	Examiner	Art Unit	
	Liam J. Heincer	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *22-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *22-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 22-24, 32-34 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horacek (US Pat. 5,206,066) in view of Michel et al. (US Pat. 4,081,426).

Considering Claims 22 and 23: Horacek teaches a melamine resin (1:1-5) comprising an etherified melamine resin (1:59-63) that have been etherified with C_{1-4} alkanols/R_3 (2:1-2) and crosslinked with polyether diols, that can be polytetrahydrofuran-diol, polypropylene glycol, ethylene glycol, proplylene glycol, or dipropylene glycol/bridging units of the formula -NH-CHR$_2$-O-R$_4$-O-CHR$_2$-NH- (1:64-68), wherein the molar ratio of the substituents R_3:R_4 are 20:1 to 1:20 (1:45-55), the proportion of the combination of the triazine segments through the polyethers is from 5 to 95 mole% (1:50-55).

Horacek does not teach the molar ratio of melamine to formaldehyde as being from 1:2.5-3.5. However, Michel et al. teaches a melamine resin with a ratio of melamine to formaladehyde of 1:0.77 to 3.0 moles (1:63-67). Horacek and Michel et al. are analogous art as they are concernd with the same field of endeavor, namely etherified aminoplast resins. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the ratio of Michel et al. in the resin of Horacek, and the motivation to do so would have been, as Michel et al. suggests, to control the degree of condensation in the reaction resin (1:63-2:10).

Horacek is silent towards the molecular weight of the resin. However, as Horacek teaches fully curing a melamine resin precondensate with polyether diols, as in the current invention, it would appear to provide the claimed molecular weight. As the PTO lab does not posses a laboratory, the burden is on the applicant to show that the process of modified Horacek would not result in a product possessing the claimed number of triazine units.

Considering Claim 24: Horacek teaches using formaldedhyde to produce the melamine resin/R_2 is H (1:45-49).

Considering Claim 32: Horacek also teaches making a laminate from the composition (3:55-57).

Considering Claims 33 and 34: Horacek teaches a prepeg/semi-finished product produced from fibers (3:27-32) that can be used in films/coatings (1:11-17).

Considering Claim 38: Horacek teaches fiber reinforcement that are glass, carbon or aramid fibers (3:16-20).

Claims 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horacek (US Pat. 5,206,066) as applied to claim 33 above, and further in view of Recker et al. (US Pat. 4,336,180) as evidenced by Kloeppel, Synthetic Molecular Sieves Binds Water Better than Zeolites.

Considering Claims 35-37: Horacek teaches the product of claim 1 as stated above.

Horacek does not teach adding a molecular sieve to the product. However, Recker et al. teaches forming a resin in the presence of a molecular sieve (3:18-19).

Horacek and Recker et al. are analogous art as they are concerned with the same field of endeavor, namely resins. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have used molecular sieving in the product of Horacek as in Recker et al., and the motivation to do so would have been, as evidenced by Kloeppel, to absorb moisture from the etherification reaction (¶2).

Claims 25, 26, 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horacek (US Pat. 5,206,066) in view of Tsukiyama et al. (US Pat. 6,818,729), Ruawendaal, (Extrusion, Enc. Of Polymer Science and Technology), Williams (Amino Resins, Enc. Of Polymer Science and Technology) and Michel et al. (US Pat. 4,081,426) .

Considering Claim 25: Horacek teaches reacting a melamine formaldehyde resin that has been etherfied with C_{1-4} alcohol/C_{1-4}-oxa-C_1-alkylene amino substituted triazine (1:59-63 and 2:1-2) with a diol mixture with up to 75% C_{2-12} diols and polyether diols (1:64-68) at 60°C and 1 atm (Example 1), where the amino groups are used in weight percent of 4:3 of the diols/~4:3 mol percent (Example 1), then further reacting the mixture for 5 minutes at 120 °C (Example 1).

Horacek does not teach reacting the diol and resin for the claimed time. However, Tsukiyama et al. teaches reacting a melamine resin with a diol for 1 to 60 min (4:55-59). Horacek and Tsukiyama et al. are analogous art as they are concerned with the same field of endeavor, namely melamine formaldehyde resins. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have reacted the reactants for the amount of time of Tsukiyama et al. in the process of Horacek, and the motivation to do so would have been, as Tsukiyama et al. suggests, this time will produce the desired resin crosslinking (4:58-59).

Horacek does not teach the second reaction as occurring at a temperature between 140 and 220 °C. However, changes in temperature will not generally support patentability. It would have been obvious to a person having ordinary skill in the art at the time of invention to have optimized the temperature of the reaction through routine

optimization, and the motivation to do so would have been to increase the curing rate and decrease the processing time. See MPEP 2144.05.

Horacek does not teach degassing the composition. However, Rauwendaal teaches degassing a polymer composition (Section 10).. Horacek and Rauwendaal are analogous art as they are concerned with the same field of endeavor, namely polymer processing. It would have been obvious to a person having ordinary skill in the art at the time of invention to have degassed the composition of Horacek as in Rauwendaal, and the motivation to do so would have been, as Rauwendaal suggests, to remove volatile components that can create voids in the final product (Section 10).

Horacek does not teach granulating the composition. However, Williams teaches granulating a amino resin molding composition (Section 6). Horacek and Williams are analogous art as they are concerned with the same field of endeavor, namely amino resin compositions. It would have been obvious to a person having ordinary skill in the art at the time of invention to have granulated the composition of Horacek as in Williams, and the motivation to do so would have been, as Williams suggests, to provide a product that is easier to handle (Section 6).

Horacek does not teach the method of making the etherified precondensate. However, Michel et al. teaches forming an etherified precondensate of melamine and formaldehyde by heating to from 85 to 115 °C at a pressure of greater than 1.5 atm/bar (2:22-35) a mixture of a melamine formaldehyde condensate and methanol (1:63-2:21) in the presence of weakly acidic medium (2:36-54). Michel et al. also teaches conditioning the condensate at 110 °C for 12 minutes at 3.5 atm (Example 1). It would have been obvious to a person having ordinary skill in the art at the time of invention to have used the method of making the condensate of Michel et al. in the process of Horacek, and the motivation to do so would have been, as Michel et al. suggests, the desired product can be made in a short reaction time (2:61-63).

Horacek does not teach the conditioning as occurring at the claimed temperature. However, changes in temperature will not generally support patentability. It would have been obvious to a person having ordinary skill in the art at the time of invention to have optimized the temperature of the reaction through routine optimization,

and the motivation to do so would have been to increase the reaction rate and degree of condensation of the precondensate. See MPEP 2144.05.

Considering Claim 26: Horacek teaches using an organic acid as a catalyst (3:11-15).

Considering Claim 30: Horacek teaches using different initial products in the condensation (2:26-42).

Considering Claim 31: Horacek does not teach the process as taking place in a single reaction instillation. However, Williams teaches making an amino resin in a single unit (Section 4). Horacek and Williams are analogous art as they are concerned with the same field of endeavor, namely amino resins. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have used a single reaction instillation in the process of Horacek as in Williams, and the motivation to do so would have been, as Williams suggests, it is a functional alternative to non continuous processes (Section 4).

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horacek (US Pat. 5,206,066) in view of Tsukiyama et al. (US Pat. 6,818,729), Ruawendaal, (Extrusion, Enc. Of Polymer Science and Technology), Williams (Amino Resins, Enc. Of Polymer Science and Technology) and Michel et al. (US Pat. 4,081,426) as applied to claim 25 above, and further in view of Recker et al. (US Pat. 4,336,180) as evidenced by Kloeppel, Synthetic Molecular Sieves Binds Water Better than Zeolites.

Considering Claim 27: Horacek, Pinschmidt, Jr. et al., Reinhardt et al., Laganis et al., Tsukiyama et al., and Dorries et al. collectively teach the method of claim 25 as shown above.

Horacek does not teach adding a molecular sieve to the process. However, Recker et al. teaches forming a resin in the presence of a molecular sieve (3:18-19). Horacek and Recker et al. are analogous art as they are concerned with the same field of endeavor, namely resins. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have used molecular sieving in the method of Horacek as in Recker et al., and the motivation to do so would have been, as evidenced by Kloeppel, to absorb moisture from the etherification reaction (¶2). Also,

although Recker does not explicitly teach the amount of molecular sieving as being in the claimed range, it would have been obvious to a person having ordinary skill in the art at the time of the invention to have optimized the range to achieve the best results. See MPEP § 2144.05.

Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horacek (US Pat. 5,206,066) in view of Tsukiyama et al. (US Pat. 6,818,729), Ruawendaal, (Extrusion, Enc. Of Polymer Science and Technology), Williams (Amino Resins, Enc. Of Polymer Science and Technology) and Michel et al. (US Pat. 4,081,426) as applied to claim 25 above, and further in view of D'Alelio (US Pat. 3,053,797).

Considering Claims 28 and 29 : Horacek, Pinschmidt, Jr. et al., Reinhardt et al., Laganis et al., Tsukiyama et al., and Dorries et al. collectively teach the method of claim 25 as shown above. Horacek also teaches using an organic acid as a catalyst (3:11-15).

Horacek does not teach the re-etherification as taking place at temperatures as claimed. However, D'Alelio teaches the polymerization/ re-etherification as taking place at temperatures of 100-250°C (12:55-59). Horacek and D'Alelio are analogous art as they are concerned with the same field of endeavor, namely triazine polymers. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have used the temperature of D'Alelio in the method of Horacek, and the motivation to do so would have been to increase the reaction rate.

Claims 39-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horacek, (US Pat. 5,206,066) in view of Dorries et al. (US Pat. 4,535,031) and Goldsworthy et al. Composites, Fabrication.

Considering Claim 39: Horacek teaches a amino resin molding composition (3:46-48) comprising polytriazine ethers (1:6) comprising traizine segments that have been partly etherified with alkanols/R_3 (2:7-13) and polyether diols/R_4 (2:40-42) where the triazines are combined through bridging members that are polyethers/-NH-CHR_2-O-R_4-O-CHR_2-

NH- (2:40-42), or formaldehyde/-NH-CHR_2-NH- (2:7-11), wherein the molar ratio of the substituents R_3:R_4 are 20:1 to 1:20 (1:45-55), the proportion of the combination of the triazine segments through the polyethers is from 5 to 95 mole% (1:50-55). Although the number of nuclei is not explicitly taught, the weight percentages could easily be manipulated to give the desired numbers. Horacek also teaches melt impregnenting of fibers (3:27-32) at mass temperatures of 105 to 260°C (3:39-46). Horacek also teaches melt impregnating component blanks (3:27-32)

Horacek does not teach the curing as taking place for 2 to 12 minutes. However, Dorries et al. teaches curing an aminoplast for 2 to 12 minutes (15:14-29). Horacek and Dorries et al. are analogous art for they are concerned witht eh same field of endeavor, namely aminoplast resins. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have cured the resin for the time in Dorries et al. in the process of Horacek, and the motivation to do so would have been, as Dorries et al. suggests, to give a well cured product (15:18-20 and 15:26-29).

Horacek does not teach the melt impregnating as being preformed according to one of the claimed techniques. However, Goldsworthy et al. teaches making a product through pultrusion (Section 3.1). Horacek and Goldsworthy et al. are analogous art as they are concerned with the same field of endeavor, namely composite production. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have used the pultrusion of Goldworthy et al. in the process of Horacek, and the motivation to do so would have been, as Goldworthy et al. suggests, to make the articles in a one step process (Section 3.1).

Considering Claim 41: Horacek teaches the polytriazine ethers being made from a formaldehyde condensation/R_2=H (2:7-15).

Considering Claim 42: Horacek teaches using p-toluene-sulphonic acid as a hardening agent (3:11-15).

Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horacek, (US Pat. 5,206,066) in view of Dorries et al. (US Pat. 4,535,031) and Goldsworthy et al. Composites, Fabrication. as applied to claim 39 above, and further in

view of Yagi et al. (US Pat. 5,624,627), Getchell et al. (US Pat. 3,982,410) and Marco et al. (US Pat. 5,856,313).

Considering Claim 43: Horacek, Dorries et al. and Goldsworthy et al. collectively teach the process of claim 39 as claimed above.

Horacek does not teach mixing the melt with a dispersion agent. However, Yagi et al teaches mixing a resin and a paraffin oil (10:10-13) in a melt kneader at a temperature of 160 to 220°C (10:37-47). Horacek and Yagi et al. are analogous art as they are concerned with the same field of endeavor, namely resin production. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have mixed a dispersion agent into the resin as in Yagi et al. in the process of Horacek, and the motivation to do so would have been, as Yagi et al. suggests, to increase the processability of the resin (1:51-64).

Horacek does not teach treating the resin with an acid gas. However, Getchell et al. teaches treating a polymer fiber mixture with an acid gas (10:50-54). Horacek and Getchell are analogous art as they are concerned with the same technical difficulty, namely impregnating fibers. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have used the acid gas of Yagi et al. in the process of Horacek, and the motivation to do so would have been, as Yagi et al. suggests, to fix the polymer in the fiber (9:47-50).

Horacek does not teach the mixture as being conveyed through a sieve separator. However, Marco et al. teaches putting a fiber through a sieve separator (2:12-16). Horacek and Marco et al. are analogous art as they are concerned with the same technical difficulty, namely the manufacture of fibers. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have used the sieve separation step of Marco et al. in the process of Horacek, and the motivation to do so would have been, as Marco et al. suggests, to obtain fibers of the desired size (2:16-17).

Horacek does not teach extracting the dispersion agent. However, Yagi et al. teaches extracting a plasticizer/dispersion agent with low boiling hydrocarbons (11:10-20). It would have been obvious to a person having ordinary skill in the art at the time of

the invention to have used the extraction step of Yagi et al. in the process of Horacek, and the motivation to do so would have been, as Yagi et al. suggests, to create a product of high tensile strength (3:47-60).

Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horacek (US 5,206,066) in view of Michel et al. (US Pat. 4,081,426). as applied to claim 33 above, and further in view of Goldsworthy et al. Composites, Fabrication.

Considering Claim 44: Horacek teaches the composition of claim 33 as stated above.

Horacek does not teach making a product as claimed from the composition. However, Goldworthy et al. teaches making a foamed container from a composite material (Section 3.6.3). Horacek and Goldsworthy et al. are analogous art as they are concerned with the same field of endeavor, namely composite production. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have made a conatainer from the composition of Horacek as in Goldworthy et al. and the motivation to do so would have been, as Goldworthy suggests, to give an insulated container for transportation (Section 3.6.3).

Response to Arguments

Applicant's arguments filed April 23, 2008 have been fully considered but they are not persuasive, because:

A) Applicant's argument that Horacek teaches resins with low degrees of crosslinking is not persuasive. The low degree of polymerization resins used in Horacek are the starting material, not the final product (Example 1). The resins are then crosslinked with difunctional alcohols to form higher molecular weight products (Example 1). Therefore, as the applicant has not provided any evidence to show that the process of Horacek only produces low molecular weight products, the argument is not persuasive. Additionally, the fact that Horacek is designed for liquid impregnation is not persuasive, as the product is fully cured following the impregnation (3:37-54). This curing step would necessarily increase the molecular weight.

B) Applicants argument that the Horacek does not teach a precondensation step is not persuasive. Instant claims 22-24, 32-38 and 44 are product claims. Therefore they are judged by the structure of the composition, not by the method making. There has been no objective evidence presented to show that the precondensation step is required to obtain the desired molecular weight, or that the resin of Horacek does not posses the claimed molecular weight.

C) In response to applicant's argument that Horacek and Tsukiyama et al. are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Horacek and Tsukiyama et al. are both concerned with condensation products of amino resins and polyalkylene glycols. Applicants argument that the two components do not react is not persausive, as Tsukiyama et al. teaches a condensation product between the alkylene glycol and the amino resin (Abstract).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARK EASHOO, PhD./ LJH
Supervisory Patent Examiner, Art Unit 1796 June 23, 2008
10-Jul-08